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CS 415

ASG5

Q1:

Make a latch class: (Not sure how to test this)

// Devin Hardy

// Asg 5

// Latch class construction

#include <iostream>

#include <random>

#include <thread>

#include <mutex>

#include <atomic>

//Heavy references to

// https://codereview.stackexchange.com/questions/269342/implementation-of-a-latch

// https://en.cppreference.com/w/cpp/thread/latch

//

class latch {

// needs a counter

std::atomic<unsigned int> myCounter;

mutable std::mutex mLock;

public:

latch(unsigned int value) { myCounter = value; }

~latch();

void count\_down(unsigned int amtToDecrement) {

myCounter -= amtToDecrement;

}

bool try\_wait() {

return !myCounter;

}

// From my understanding

// returns if counter is already zero

// locks the mutex until it leaves the function

void wait() const {

if (!myCounter) return;

std::lock\_guard<std::mutex> lock(mLock);

while (myCounter);

}

void arrive\_and\_wait(unsigned int amtToDecrement) {

count\_down(amtToDecrement);

wait();

}

};

int main()

{

return 0;

}